

**COPY
CRUDE OIL
TESTING INC.**

DRILL STEM TEST REPORT

COMPANY A. Scott Ritchie LEASE AND WELL NO. Musselman #1 SEC. 32 TWP. 16S RGE. 22W TEST NO. 1-4 DATE 9/17/85

CRUDE OIL TESTING, INC.

DATE 9/14/85

TEST TICKET NO. 5481

Company: A. Scott Ritchie
 Company Address: 125 N. Market Suite 950 Wichita KS 67202
 Location: Sec. 32 Twp. 16S Range 22W Co. Ness State KS
 Well Name & Number: Musselman #1 Code E19

ENGINEERING DATA	Elevation	2380 KB	Drill Pipe Length	3082	ID 3.8 "
	Mud Viscosity	49	Weight Pipe Length	790	ID 2.76"
	Mud Weight	9.8	Drill Collar Length	358	ID 2.25"
	Water Loss	14.6	Top Packer Depth	4246	
	Type of Mud	Starch	Bottom Packer Depth	4251	
	Anchor Length	35	Tool Joint Size	4.5 FH	
	Hole Size	7 7/8	Test Tool Size	5 1/2	
	Casing Size	8 5/8	Packer Size	6 3/4	
	Surface Choke	3/4	Reversed Out	No	
	Bottom Choke	3/4	Recorder #	13255	
	Extra Equipment		None		

REMARKS DST #1

FORMATION	Fort Scott	Zone Top	Test Type	Conventional
	Interval 4251	To 4286	Total Depth	4286
	Open 30	Shut In 30	Open 30	Shut In 30
	Packer(s) Set	03:03AM	Started Off Bottom	05:05AM
	Blow 1st Opening Weak blow died in 22 min.			
2nd Opening No blow, flushed tool, no blow.				

RECOVERY	Total Feet	20
	Recovered	20 feet of Mud

CALCULATED RECOVERY	Gas	Oil	Water	Mud	20
	Gravity (Oil)		Test Water Chlorides	PPM	
	Test Area Temperature 116F		Mud System Chlorides	46,000 PPM	

	FIELD READING	OFFICE READING	
PRESSURE	(A) Initial Hydrostatic Mud	2269	PSI
	(B) First Initial Flow Pressure	35	PSI
	(C) First Final Flow Pressure	46	PSI
	(D) Initial Closed-In Pressure	81	PSI
	(E) Second Initial Flow Pressure	46	PSI
	(F) Second Final Flow Pressure	46	PSI
	(G) Final Closed-In Pressure	70	PSI
	(H) Final Hydrostatic Mud	2246	PSI

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 1

TEST TICKET NO. 5481

WELL NAME: Musselman #1

WELL LOCATION: 32-16S-22W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	3082.00	3.826	4.50
3	Weight Pipe	790.00	2.760	4.50
4	Drill Collar - 6"	358.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
14	Packer	5.35	1.530	6.75
6	Anchor	31.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	4286.75		

CRUDE OIL TESTING, INC.

DATE 9/14/85

TEST TICKET NO. 5482

Company: A. Scott Ritchie
 Company Address: 125 N. Market Suite 950 Wichita KS 67202
 Location: Sec. 32 Twp. 16S Range 22W Co. Ness State KS
 Well Name & Number: Musselman #1 Code E19

ENGINEERING DATA	Elevation 2380 KB	Drill Pipe Length 3122	ID 3.8 "
	Mud Viscosity 42	Weight Pipe Length 790	ID 2.76"
	Mud Weight 9.9	Drill Collar Length 358	ID 2.25"
	Water Loss 13.2	Top Packer Depth	
	Type of Mud Starch	Bottom Packer Depth 4286	
	Anchor Length 16	Tool Joint Size 4.5 FH	
	Hole Size 7 7/8	Test Tool Size 5 1/2	
	Casing Size 8 5/8	Packer Size 6 3/4	
	Surface Choke 3/4	Reversed Out No	
	Bottom Choke 3/4	Recorder # 13255	
	Extra Equipment	None	

REMARKS DST #2
 Weak blow during 2nd shutin.

FORMATION Cherokee Zone Upper Test Type Conventional
 Interval 4286 To 4302 Total Depth 4302
 Open 15 Shut In 15 Open 0 Shut In 0
 Packer(s) Set 05:08PM Started Off Bottom 05:40PM
 Blow 1st Opening Strong blow off bottom of bucket in 1.5 min.
 2nd Opening N/A

RECOVERY Total Feet 598
 Recovered 598 feet of Gassy mud cut oil
 Recovered 558 feet of Gas in pipe

CALCULATED RECOVERY Gas 88.6 Oil 418.1 Water 51.68 Mud 39.62
 Gravity (Oil) Test Water Chlorides PPM
 Test Area Temperature 118F Mud System Chlorides 46,000 PPM

		FIELD READING	OFFICE READING	
PRESSURE	(A) Initial Hydrostatic Mud	2292	2297	PSI
	(B) First Initial Flow Pressure	140	164	PSI
	(C) First Final Flow Pressure	198	218	PSI
	(D) Initial Closed-In Pressure	882	877	PSI
	(E) Second Initial Flow Pressure			PSI
	(F) Second Final Flow Pressure			PSI
	(G) Final Closed-In Pressure			PSI
	(H) Final Hydrostatic Mud	2269	2250	PSI

CRUDE OIL TESTING INC.

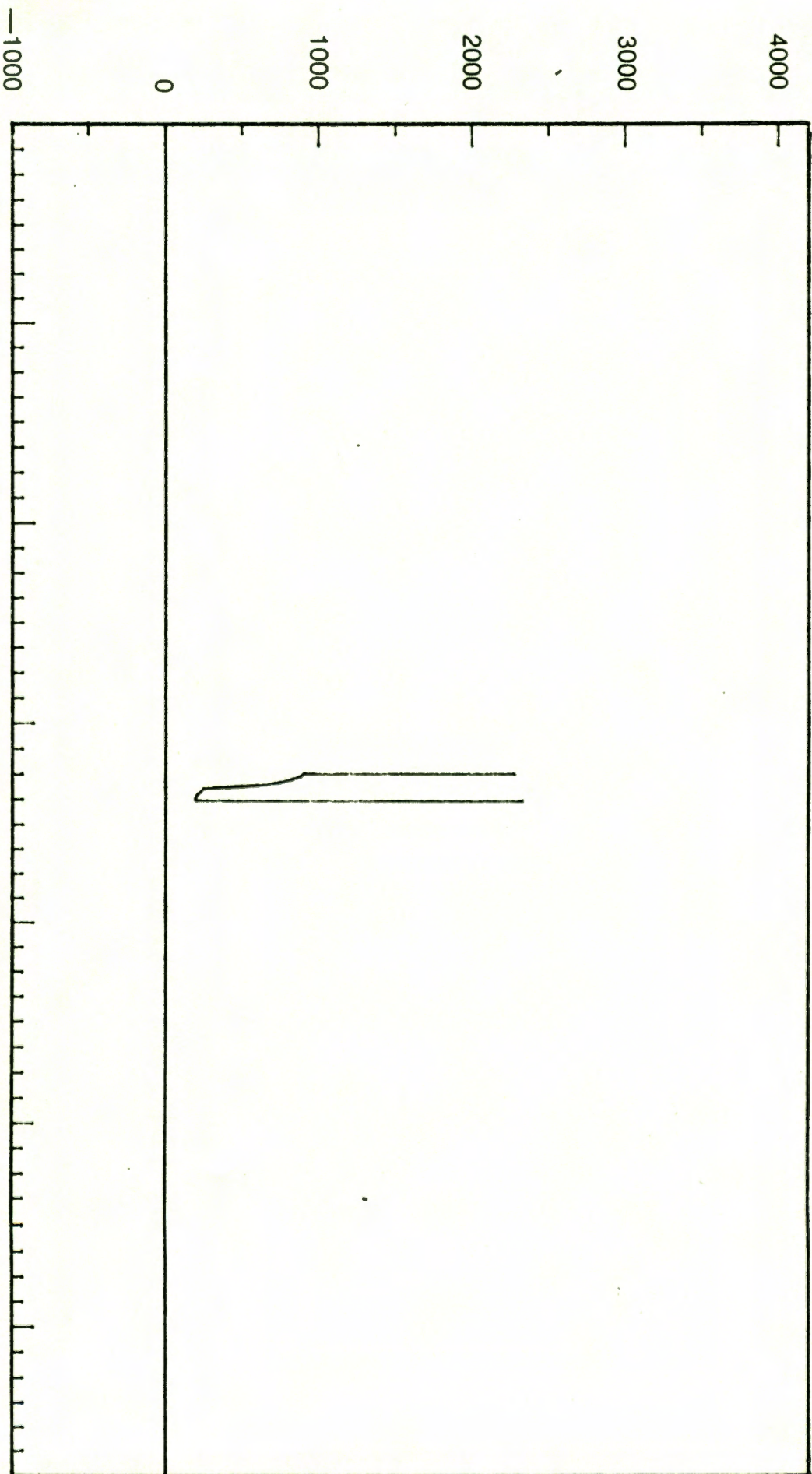
FOR: A. Scott Ritchie

TEST 5482

DST 2

09/14/85

PRESSURE



PRESSURE BREAKDOWN

TEST TICKET NO. 5482

DST Number: 2 Recorder Number: 13255 Clock Number: 25113

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins. Press.		Mins. Press.		Mins. Press.		Mins. Press.	
0	164	0	217				
3	167	3	571				
6	180	6	721				
9	202	9	798				
12	217	12	852				
		15	876				

EQUIPMENT DATA

TOOL SEQUENCE REPORT

DST Number: 2

TEST TICKET NO. 5482

WELL NAME: Musselman #1

WELL LOCATION: 31-16S-22W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	3122.00	3.826	4.50
3	Weight Pipe	790.00	2.760	4.50
4	Drill Collar - 6"	358.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
6	Anchor	12.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	4302.40		

CALCULATED RECOVERY ANALYSIS

DST Number: 2

TEST TICKET NO. 5482

Sample #	Total Feet	***** Gas %	***** Feet	***** Oil %	***** Feet	***** Mud %	***** Feet
1	102	20.00	20.40	30.00	30.60	20.00	20.40
2	124	10.00	12.40	80.00	99.20	5.00	6.20
3	186	20.00	37.20	70.00	130.20	5.00	9.30
4	186	10.00	18.60	85.00	158.10	2.00	3.72
TOTAL	<u>598</u>	14.82	<u>88.60</u>	69.92	<u>418.10</u>	6.63	<u>39.62</u>

Sample #	***** Water %	*** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	30.00	30.60			
2	5.00	6.20			
3	5.00	9.30			
4	3.00	5.58			
TOTAL	8.64	<u>51.68</u>			

CRUDE OIL TESTING, INC.

DATE 9/15/85

TEST TICKET NO. 5483

Company: A. Scott Ritchie
 Company Address: 125 N. Market Suite 950 Wichita KS 67202
 Location: Sec. 32 Twp. 16S Range 22W Co. Ness State KS
 Well Name & Number: Musselman #1 Code E19

ENGINEERING DATA	Elevation	2380 KB	Drill Pipe Length	3187	ID 3.8 "
	Mud Viscosity	46	Weight Pipe Length	790	ID 2.76"
	Mud Weight	9.8	Drill Collar Length	358	ID 2.25"
	Water Loss	13.2	Top Packer Depth		
	Type of Mud	Starch	Bottom Packer Depth	4351	
	Anchor Length	27	Tool Joint Size	4.5	FH
	Hole Size	7 7/8	Test Tool Size	5 1/2	
	Casing Size	8 5/8	Packer Size	6 3/4	
	Surface Choke	3/4	Reversed Out	No	
	Bottom Choke	3/4	Recorder #	13255	
	Extra Equipment		None		

REMARKS DST #3

FORMATION	Busal	Zone Sand	Test Type	Conventional
	Interval 4351	To 4378	Total Depth	4378
	Open 30	Shut In 45	Open 30	Shut In 45
	Packer(s) Set	11:43AM	Started Off Bottom	02:15PM
	Blow 1st Opening Weak increasing to 1.5 inches in bucket. 2nd Opening Weak steady blow on top of bucket.			

RECOVERY	Total Feet	72
	Recovered	72 feet of Oil cut mud

CALCULATED RECOVERY	Gas	Oil	8.64	Water	5.76	Mud	57.6
	Gravity (Oil)			Test Water Chlorides		PPM	
	Test Area Temperature		122F	Mud System Chlorides		44,000 PPM	

		FIELD READING	OFFICE READING	
PRESSURE	(A) Initial Hydrostatic Mud	2350	2360	PSI
	(B) First Initial Flow Pressure	35	31	PSI
	(C) First Final Flow Pressure	46	47	PSI
	(D) Initial Closed-In Pressure	1305	1307	PSI
	(E) Second Initial Flow Pressure	58	55	PSI
	(F) Second Final Flow Pressure	58	66	PSI
	(G) Final Closed-In Pressure	1283	1299	PSI
	(H) Final Hydrostatic Mud	2327	2299	PSI

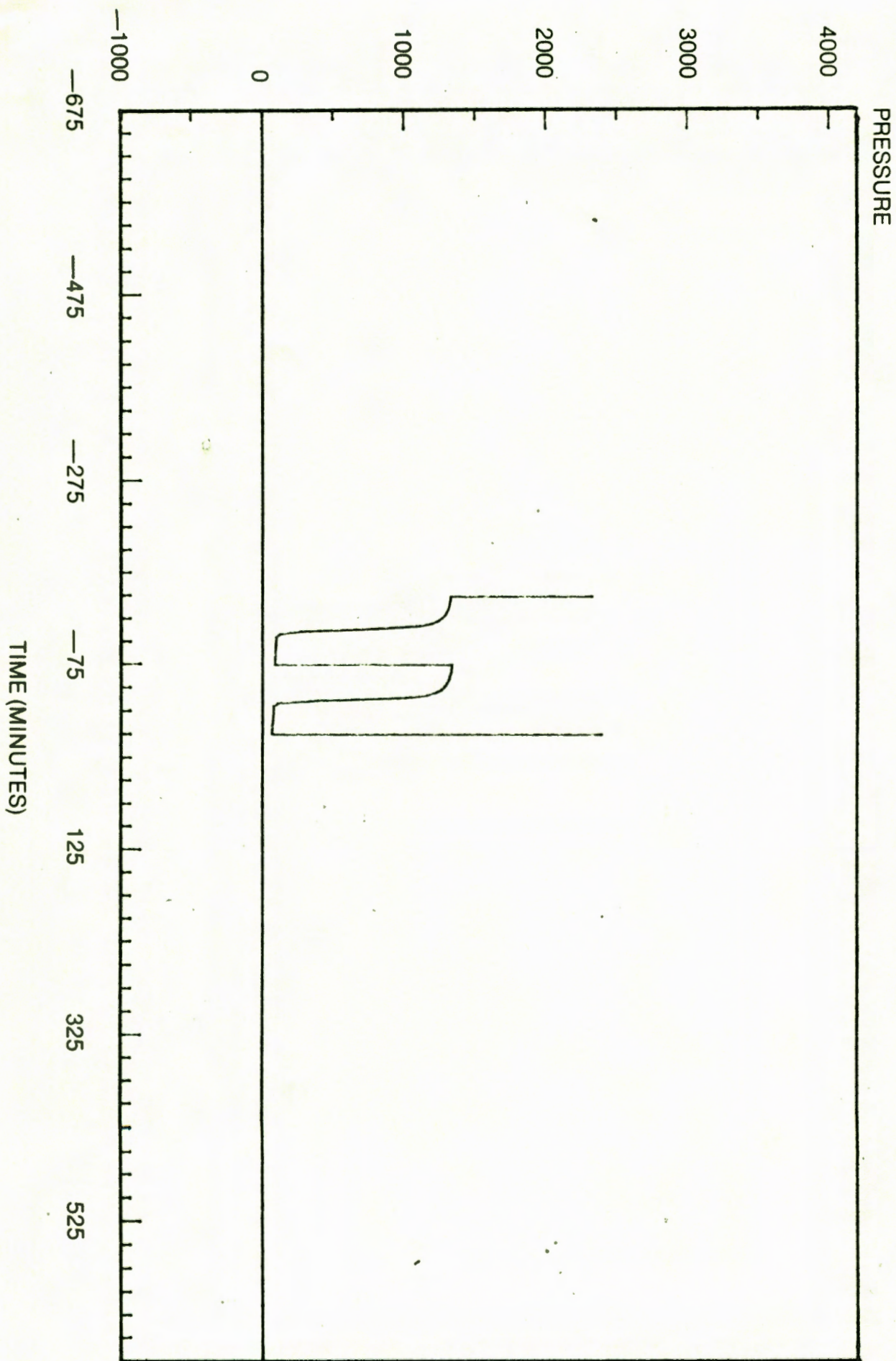
CRUDE OIL TESTING INC.

FOR: A. Scott Ritchie

TEST 5483

DST 3

09/15/85



PRESSURE BREAKDOWN

TEST TICKET NO. 5483

DST Number: 3 Recorder Number: 13255 Clock Number: 25113

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins.	Press.	Mins.	Press.	Mins.	Press.	Mins.	Press.
0	31	0	46	0	54	0	66
3	32	3	75	3	54	3	92
6	34	6	360	6	55	6	245
9	34	9	982	9	57	9	774
12	36	12	1132	12	58	12	1080
15	38	15	1197	15	58	15	1171
18	40	18	1233	18	60	18	1215
21	41	21	1253	21	61	21	1241
24	43	24	1268	24	62	24	1259
27	44	27	1280	27	65	27	1269
30	46	30	1288	30	66	30	1279
		33	1292			33	1284
		36	1299			36	1289
		39	1303			39	1294
		42	1306			42	1298
		45	1306			45	1298

EQUIPMENT DATA
TOOL SEQUENCE REPORT

DST Number: 3

TEST TICKET NO. 5483

WELL NAME: Musselman #1

WELL LOCATION: 32-16S-22W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	3187.00	3.826	4.50
3	Weight Pipe	790.00	2.760	4.50
4	Drill Collar - 6"	358.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
6	Anchor	23.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
16	Bull Plug	2.00		5.00
	Total Depth	4378.40		

CALCULATED RECOVERY ANALYSIS

DST Number: 3

TEST TICKET NO. 5483

Sample #	Total Feet	***** Gas %	***** Feet	***** Oil %	***** Feet	***** Mud %	***** Feet
1	72	0.00	0.00	12.00	8.64	80.00	57.60
TOTAL	<u>72</u>	0.00	<u>0.00</u>	12.00	<u>8.64</u>	80.00	<u>57.60</u>

Sample #	***** Water %	***** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	8.00	5.76			
TOTAL	8.00	<u>5.76</u>			

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TEST TICKET NO. 5484

Company: A. Scott Ritchie
 Company Address: 125 N. Market Suite 950 Wichita KS 67202
 Location: Sec. 32 Twp. 16S Range 22W Co. Ness State KS
 Well Name & Number: Musselman #1 Code E19

ENGINEERING DATA	Elevation 2380 KB	Drill Pipe Length 3239	ID 3.8 "
	Mud Viscosity 47	Weight Pipe Length 790	ID 2.76"
	Mud Weight 9.9	Drill Collar Length 358	ID 2.25"
	Water Loss 9.6	Top Packer Depth 4412	
	Type of Mud Starch	Bottom Packer Depth 4423	
	Anchor Length 11	Tool Joint Size 4.5	FH
	Hole Size 7 7/8	Test Tool Size 5 1/2	
	Casing Size 8 5/8	Packer Size 6 3/4	
	Surface Choke 3/4	Reversed Out No	
	Bottom Choke 3/4	Recorder # 13255	
	Extra Equipment	None	

REMARKS DST #4

FORMATION	Mississippi Zone Top	Test Type Straddle
	Interval 4412 To 4423	Total Depth 4423
	Open 45 Shut In 60	Open 45 Shut In 60
	Packer(s) Set 08:58AM	Started Off Bottom 12:30PM
	Blow 1st Opening Fair off bottom of bucket in 32 min.	
	2nd Opening Fair off bottom of bucket in 44 min.	

RECOVERY Total Feet 764
 Recovered 764 feet of Muddy salt water - trace of oil

CALCULATED RECOVERY	Gas Oil	Water 594.8	Mud 169.2
	Gravity (Oil)	Test Water Chlorides 51,000 PPM	
	Test Area Temperature 122F	Mud System Chlorides 36,000 PPM	

	FIELD READING	OFFICE READING	
PRESSURE	(A) Initial Hydrostatic Mud 2407	2398	PSI
	(B) First Initial Flow Pressure 35	36	PSI
	(C) First Final Flow Pressure 140	155	PSI
	(D) Initial Closed-In Pressure 1317	1328	PSI
	(E) Second Initial Flow Pressure 163	185	PSI
	(F) Second Final Flow Pressure 257	267	PSI
	(G) Final Closed-In Pressure 1317	1326	PSI
	(H) Final Hydrostatic Mud 2384	2345	PSI

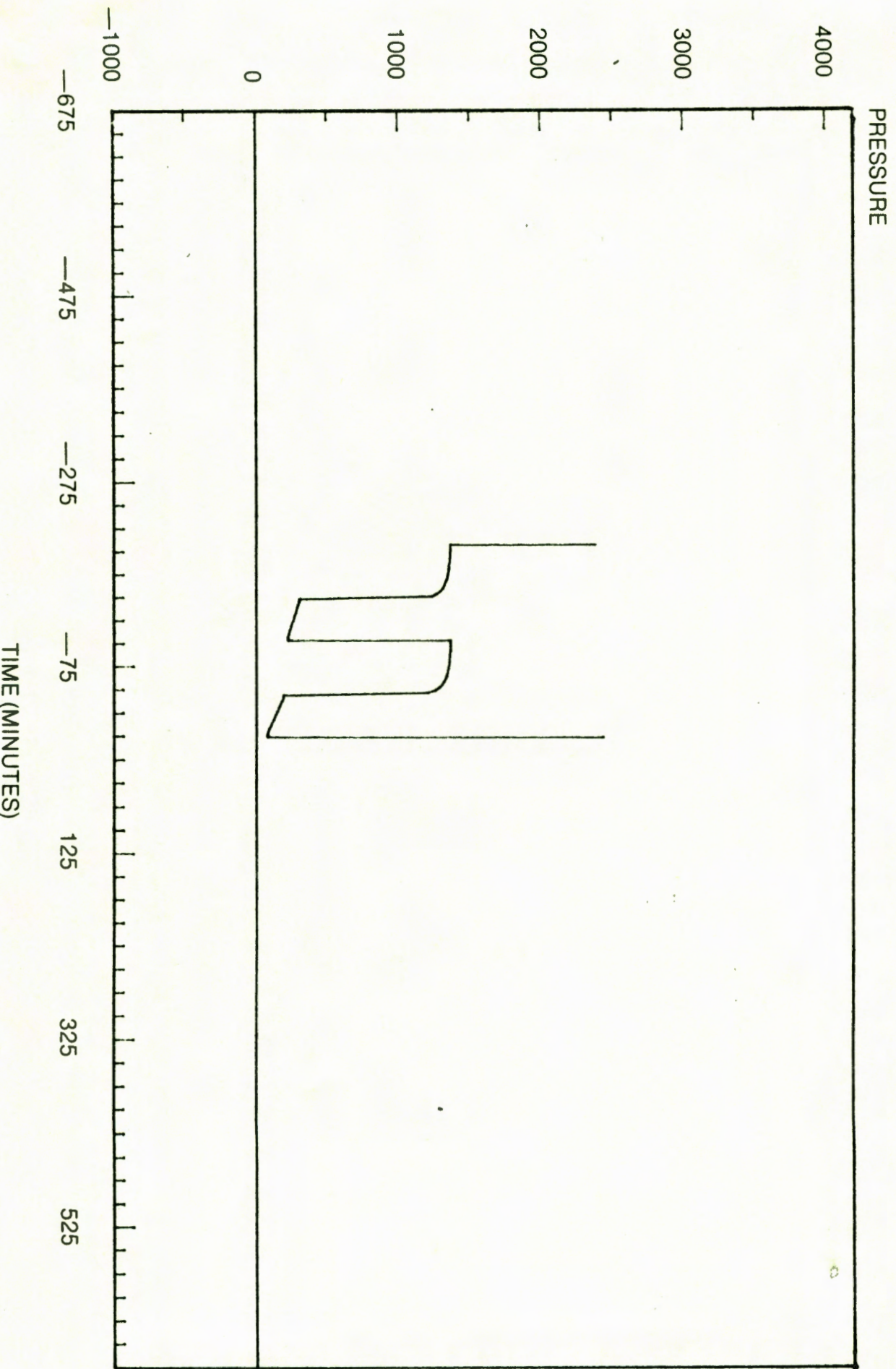
CRUDE OIL TESTING INC.

FOR: A. Scott Ritchie

TEST 5484

DST 4

09/17/85



PRESSURE BREAKDOWN

TEST TICKET NO. 5484

DST Number: 4 Recorder Number: 13255 Clock Number: 25113

First Flow Pressure		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Mins. Press.		Mins. Press.		Mins. Press.		Mins. Press.	
0	36	0	154	0	185	0	266
3	37	3	1171	3	185	3	1198
6	40	6	1221	6	189	6	1234
9	48	9	1252	9	194	9	1259
12	60	12	1269	12	200	12	1274
15	69	15	1282	15	206	15	1284
18	79	18	1291	18	211	18	1291
21	87	21	1298	21	221	21	1299
24	94	24	1304	24	227	24	1304
27	104	27	1308	27	232	27	1308
30	115	30	1312	30	238	30	1312
33	122	33	1315	33	244	33	1314
36	130	36	1318	36	249	36	1316
39	142	39	1319	39	257	39	1319
42	148	42	1322	42	263	42	1320
45	154	45	1323	45	266	45	1322
		48	1326			48	1323
		51	1327			51	1324
		54	1327			54	1326
		57	1327			57	1326
		60	1328			60	1326

EQUIPMENT DATA
TOOL SEQUENCE REPORT

DST Number: 4

TEST TICKET NO. 5484

WELL NAME: Musselman #1

WELL LOCATION: 32-16S-22W

Tool #	Tool	Length	I.D.	O.D.
1	Drill Pipe - 4.5"	3239.00	3.826	4.50
3	Weight Pipe	790.00	2.760	4.50
4	Drill Collar - 6"	358.00	2.250	6.00
8	Circulating Sub	1.00	3.000	5.00
9	Shut-In Tool	5.45	0.870	5.00
10	Hydraulic Tool	5.60	1.000	5.00
14	Packer	5.35	1.530	6.75
6	Anchor	4.00	2.750	5.00
15	Recorder Carrier	1.00		5.00
14	Packer	5.35	1.530	6.75
6	Anchor	34.00	2.750	5.00
16	Bull Plug	2.00		5.00
	Total Depth	4450.75		

CALCULATED RECOVERY ANALYSIS

DST Number: 4

TEST TICKET NO. 5484

Sample #	Total Feet	***** Gas %	***** Feet	***** Oil %	***** Feet	***** Mud %	***** Feet
1	82	0.00	0.00	0.00	0.00	40.00	32.80
2	682	0.00	0.00	0.00	0.00	20.00	136.40
TOTAL	<u>764</u>	0.00	<u>0.00</u>	0.00	<u>0.00</u>	22.15	<u>169.20</u>

Sample #	***** Water %	*** Feet	Chlorides (PPM)	Resistivity (Ohms)	Temperature (Deg)
1	60.00	49.20	51,000		
2	80.00	545.60			
TOTAL	77.85	<u>594.80</u>			